



The Nuclear Weapons Complex relies on Y-12's top-grade materials to train workers and help researchers monitor stockpile readiness.

# Stockpile Programs

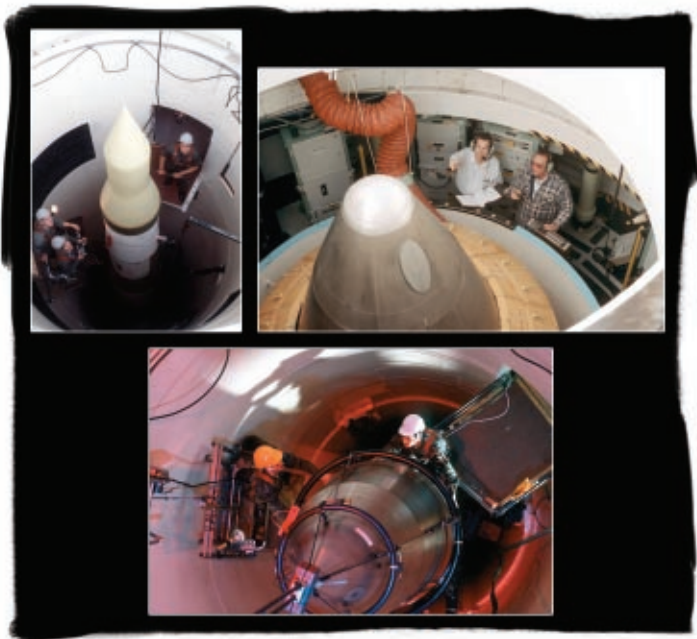
**BILL REIS** Director, Directed Stockpile Work

## PANTEX TRAINS WITH Y-12 PRODUCT

If it looks like a canned subassembly but isn't, then what is it? In this case, it's a training aid.

Y-12 built a full-scale model of a W78 canned subassembly for use at Pantex to train assembly staff on how

and Pantex receive rigorous training in the equipment and processes they will use. They also receive hands-on practice with a "trainer." Trainers are full-scale models that look, weigh and feel like the real thing, only they are made of routine, inert, nonexplosive, non-toxic materials—just in case.



to work with a new type of Joint Test Assembly. Pantex is using the training aid to prove-in its assembly operations for the new test device. To become certified to work on any weapon system, assembly personnel at Y-12

Livermore National Laboratory experiments that use Y-12-manufactured test hardware. The hydrodynamic test program at LLNL uses the Contained Firing Facility to obtain data under the dynamic conditions associated with detonation. Timely delivery of the highest-quality materials and components is necessary to keep this work on schedule. In response to a recent delivery produced on a short turnaround, LLNL physicist Greg Archbold said, "I wish to express my appreciation for your timely delivery

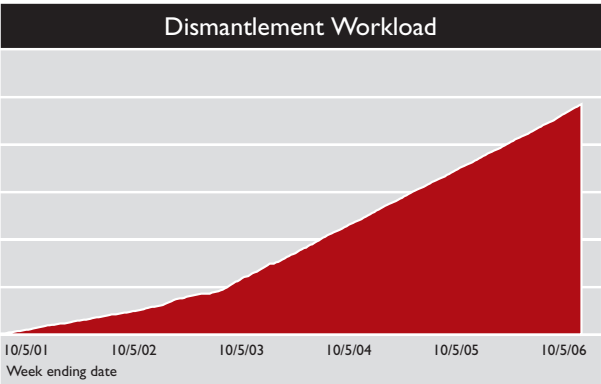
The W78 is the warhead for the Minuteman III Intercontinental Ballistic Missile, shown here in silos undergoing maintenance checks by U.S. Air Force personnel. Photographs courtesy of U.S. Air Force.

of a quality product. The plate you recently shipped us was in excellent condition, and we received it in time to keep our experimental schedule on track."

## TEST HARDWARE SUPPORTS DESIGN EXPERIMENTS

Nuclear weapons don't have a "best if used by" date on them, but the effects of aging and storage conditions on the materials from which a weapon's components are made are critical factors in determining the need for and extent of a life extension program.

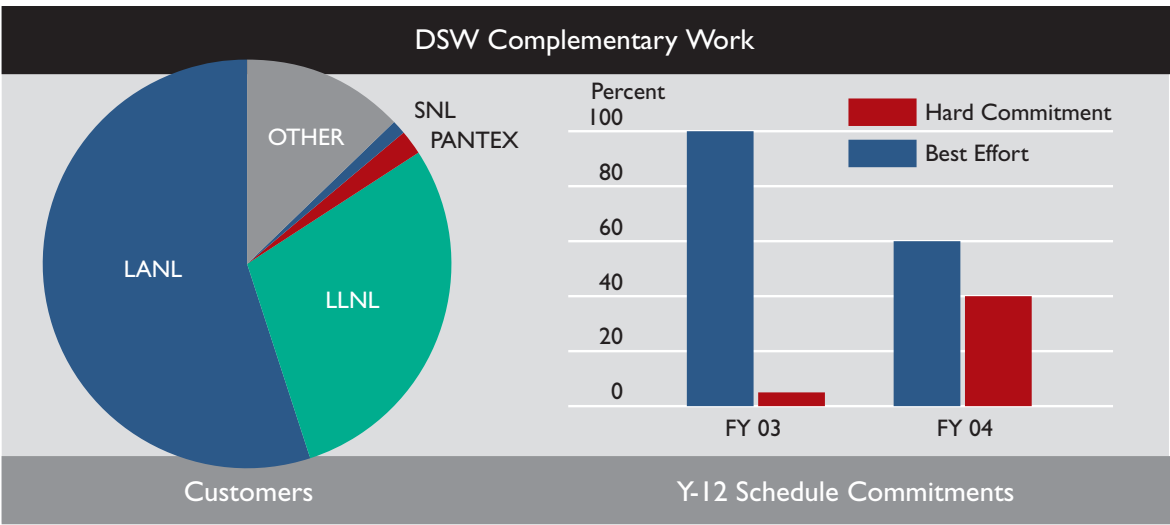
To support W76 LEP evaluation tests, Y-12 produced sample coupons of weapon materials, on a compressed schedule, for testing in the Annular Core Research



Dismantlement workload will increase fourfold between 2003 and 2006.

## Y-12 SUPPORTS CRITICAL TESTING PROGRAMS

What happens when it goes "bang"? The process and effects of detonation are the targets of critical Lawrence



Meeting defined commitment dates is becoming increasingly important to DSW Complementary Work's high-profile, short-duration projects.

Reactor at Sandia National Laboratories in Albuquerque. Tests on the stack of coupons help Los Alamos National Laboratory physicists better understand what happens to materials as they age and how the properties of one material affect those of another. The results of these and other tests are used to confirm the need to replace or redesign a component made from a given material.

## Y-12 NDE SCREENING TO HELP PANTEX

Reducing a backlog of NNSA Stockpile Surveillance work is always desirable, but it is especially nice

if someone else can, and will, do part of the work. In January 2004, in an example of effective partnering and cooperation, Y-12 began working with Pantex to reduce the stockpile surveillance backlog. Using high- and low-energy radiography as the nondestructive screening process, Y-12 will examine nuclear weapon components sent from Pantex to assess their condition. Y-12 successfully used these processes last year in the B61 Nondestructive Evaluation Program. Routine surveillance and maintenance activities include nondestructive and destructive evaluation

methods and tests, the latter involving complete, ruinous disassembly. Using radiography to perform NDE checks allows units to be refurbished without undergoing complete disassembly and reassembly. Working together, Y-12 and Pantex will be able to recover and meet NNSA stockpile surveillance schedules sooner and at an overall lower cost.

**INFLUENCE**  
—Bill Reis

"Colin Powell's leadership lessons are true gems of wisdom. Lesson 6 says: 'You don't know what you can get away with until you try.'"